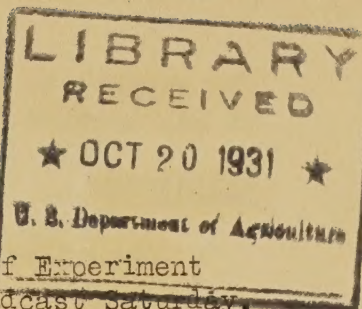


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## OUR NATIONAL SYSTEM OF FARM AND HOME RESEARCH

A radio interview with Dr. J. T. Jardine, Chief, Office of Experiment Stations, conducted by Morse Salisbury, Radio Service, and broadcast Saturday, September 26, 1931, in the Land Grant College Program, National Farm and Home Hour, by a coast-to-coast network of 52 associate NBC stations.

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### SALISBURY:

While the recent Land Grant College programs have brought you messages from the men and women who are teaching farmers and homemakers new scientific facts pertaining to their businesses, we may have overlooked a bit the contributions of the men and women who determine those facts. Today we shall remedy that oversight.

We shall have a look, through the descriptions given us by the newly-appointed chief of the Federal Office of Experiment Stations, at the whole national system of research in farming and homemaking, which centers about the Land Grant Colleges and the United States Department of Agriculture.

Our speaker, Dr. James T. Jardine, comes to the Federal Department from the Oregon Agricultural Experiment Station where, as director, he was in charge of some of the most significant research going forward in the United States.

As a former State experiment station director, and as the present head of the Federal Office of Experiment Stations -- a unit of the Department of Agriculture -- Dr. Jardine is well equipped to explain to us the aims and the work of the national system of agricultural research. He is further qualified by the fact that two years ago he conducted, as part of the nation-wide Land Grant College survey, the investigation into the research work of the colleges. His report forms an important part of the voluminous summary of that survey, just issued by the United States Office of Education.

Dr. Jardine, will you begin, please, with an explanation of how the national system of farm and home research has grown up?

### DR. JARDINE:

Gladly; but first I say a how-do-you-do to the radio audience of the nation.....

This national system of agricultural research is not an ancient system. In fact all agricultural research dates back only about 100 years. In this country, the systematic organization of farm and home research began with the establishment of the United States Department of Agriculture in 1862. Some 13 years later the first State agricultural experiment station was established. Other states followed the lead of Connecticut. Then came, in 1887, the Act of Congress which really created the national system of agricultural experiment stations. That is known as the Hatch Act. It appropriated from Federal funds, \$15,000 annually for each state to be used in operating a State agricultural experiment station. By subsequent legislation, the Federal contribution toward



the support of these State institutions has been increased gradually until it now amounts to \$90,000 annually for each State.

SALISBURY:

Regardless of its size, or the prominence of its agriculture?

DR. JARDINE:

Regardless. The reason for this is that the benefits of agricultural research are not limited by State boundaries. We often find that the results of discoveries at one station may be of equal importance in another State 2,000 miles away.

SALISBURY:

The States of course also contribute to the support of the experiment stations. Dollar for dollar?

DR. JARDINE:

The Federal Appropriation Acts do not require contributions by the States but as a matter of fact, the States put into the work of their stations about three dollars for each one dollar from the Federal Government.

SALISBURY:

Then what, altogether is the annual cost of the stations per capita of the total U. S. population?

DR. JARDINE:

About 15 cents.

SALISBURY:

Did your recent survey include estimates of the value of their contributions to the agricultural industry of the country?

DR. JARDINE:

Yes, for the year 1928, the latest one on which we then had statistics. The estimate for that year placed a value of more than 840 million dollars on the accumulated results of research of 35 stations reporting. If the same proportion was maintained by the 15 nonreporting stations, the total was well above a billion dollars, or about \$100 return for every dollar invested in farm research that year.

SALISBURY:

That estimate covers the agricultural research only?

DR. JARDINE:

Yes. The research into such items as soil improvement and maintenance, crop varieties and culture, control of insects and plant and animal diseases, methods for management of farm animals, methods of marketing farm products, and methods of managing the individual farming business for greatest efficiency.



SALISBURY:

But your estimates of monetary value didn't include the research in home economics?

DR. JARDINE:

No, those estimates dealt only with agricultural investigations. One hesitates to make an estimate in monetary terms of the worth of research results in many phases of home economics. The stations are doing more and more research in home economics, and more and more the results of other research is reflected in new knowledge that closely touches the home, and the work of the homemaker.

SALISBURY:

Can you give us some examples of what you mean, there?

DR. JARDINE:

Yes, more, probably, than you'll have time to listen to. Here's one. The State Experiment stations were among the early discoverers of the necessity of the supplemental factors in animal feeds. These now are known as vitamins. I don't suppose anyone listening has failed to make some contact with that word, and to modify his diet because of it. The experiment stations have been especially active in working out the place of vitamins in the diet. So, this work of the experiment stations, started as investigations into the feeding of animals, has had wide application to the feeding of your family and mine -- particularly of our children.

I could go on with a long list -- the discovery of the mineral requirements for proper nutrition; the method of irradiating foods deficient in vitamin D with ultra-violet light and thus making up the deficiency; the discovery at a Western station of a marked difference between milk from different cows in hardness of curd, and that soft curd milk is more easily digestible by infants and invalids; the use by northwestern stations of iodine to prevent goitre and hairlessness in animals which contributed to the knowledge of prevention of goitre in human beings.

SALISBURY:

That seems enough to be convincing. Will you picture for us some of the advances in agricultural knowledge and practice fostered by the experiment stations?

DR. JARDINE:

I hardly know where to start here on a thumb-nail sketch. I will begin with the plant industries. Everybody knows of the new varieties of crop plants, higher yielding, resistant to insects or diseases, developed by plant breeders or introduced by plant explorers. For example, the wheat industries of most sections in the United States are built around improved varieties created or introduced by the State experiment stations and the United States Department of Agriculture.



Take horticulture. Station research here has revolutionized orchard practices. I ask my middle-aged hearers in the orchard business to recollect the period 20-30 years ago, and compare it with today to see what a change has been brought about by science in their business -- cover crops driving out the practice of clean cultivation and dust mulch; entirely new spraying systems for the control of insects and diseases; improved methods of pruning and grafting, and so on, and so on.

If we turn to the animal industries we think first of all, I suppose, of the progress made in control of animal diseases by the conquests of death-dealing micro-organisms and insects through serums, viruses, agossins, dips, sprays, and management methods. Then, we think of the new methods of management and feeding which have made it possible for the livestock industry to switch from an open range basis to the present system.

The classic example of the importance of research to agricultural industries is the far-reaching effect upon the dairy industry of the Babcock test for butter fat in milk. Lacking this test, the industry was chaotic, disorganized. With the test, the industry has developed a rigorous program of improvement in production efficiency which is the envy of the other agricultural industries. The man who developed the test was a State experiment station worker, the late Stephen Moulton Babcock of Wisconsin.

SALISBURY:

We all acknowledge that research has increased the efficiency of the American farmer manyfold; has made him a regular dynamo of a producer. But how about research on helping the farmer dispose of his products?

DR. JARDINE:

That is now progressing at an accelerated rate. Naturally so, since the attention of our whole society is centered on this problem. I think we need have no fear that research will not show results in this field just as it has in the field of production. Just think back 30 years or 40 years ago. Remember the doleful predictions by such eminent authorities as the British economist Crookes that by the beginning of the second quarter of the Twentieth Century we would face a world shortage of breadstuffs because population would increase faster than our ability to produce bread grains. How those prophets must be squirming in their graves in this year of grace!

And why? Because science centered its attention on the problem of increasing production efficiency. Now science must turn its attention to the problem of increasing efficiency of distribution. We can't expect results overnight. We have got to reverse the speed of a mighty engine. But we shall do it. Already accomplishments are beginning to come from the brief period of agricultural economics research carried on in the Federal Department and in the State experiment stations. One instance: the movement to standardize farm products -- the first essential to a rational system of distribution-- is far advanced. It has come through persistent pressure from station and federal department economists. Other accomplishments will follow in this decade, many others.



I am sure I speak the sentiment of all the agricultural and home economics research workers in the United States when I solicit the interest of farmers and homemakers in farm and home research, their cooperation with it, and their suggestions for its development and their use of its results.

Thanks, Mr. Salisbury, and Farm and Home folks, for your interest in what I have had to say. Good bye.

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